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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.: RPS920000117US1

In re Application of:

WILLIAM JOSEPH PIAZZA

Serial No.: 09/918,132

Filed: 30 JULY 2001

**FOR: METHOD AND SYSTEM FOR
IDENTIFYING
COMPATIBILITY BETWEEN
FIRMWARE IMAGES**

Examiner: QAMRUN NAHAR

Art Unit: 2124

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

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Sir:

This Appeal Brief is submitted in support of the Appeal of the Examiner's final rejection of Claims 9 and 14 in the above-identified application. A Notice of Appeal was filed in this case on April 28, 2005 and received in the United States Patent and Trademark Office on April 28, 2005. Please charge the fee of \$500.00 due under 37 C.F.R. §1.17(c) for filing the brief, as well as any additional required fees, to IBM Deposit Account No. 50-0563.

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REAL PARTY IN INTEREST

The real party in interest in the present Application is International Business Machines Corporation, the Assignee of the present application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, the Appellants' legal representative, or assignee, which directly affect or would be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-52 were originally presented. Claims 1, 12, 16, 19, 20 and 31 were amended in Appellants' Amendment A filed on November 24, 2004. Claims 1-52 stand finally rejected by the Examiner as noted in the Final Office Action dated March 1, 2005. The rejection of Claim 1 is appealed.

STATUS OF AMENDMENTS

The amendments filed on November 24, 2004 have been entered. No new amendments have been proposed after the March 1, 2005 Final Office Action.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The invention recited in exemplary Claim 1 provides a method for determining if two firmware images are compatible according to their firmware family codes. If the two firmware family codes are the same, then the firmware images are assumed to be compatible. If the two firmware image family codes are different, then the firmware images are assumed to be incompatible, unless a compatibility table entry indicates otherwise. (See, *inter alia*, page 6, lines 3-14 of the present invention's specification.)

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner's rejection of Claim 1 under 35 U.S.C. §102(e) as being anticipated by *Kathail* (U.S. Patent No. 5,802,365 – “*Kathail*”) is to be reviewed on Appeal.

ARGUMENT

A. The rejection of Claim 1 under 35 U.S.C. §102(e) as being anticipated by *Kathail* (U.S. Patent No. 5,802,365 – “*Kathail*”)

Kathail does not teach all of the claim limitations of the present invention, and thus the rejection of Claim 1 should be reversed.

Kathail describes a method for automatically correlating a device to its appropriate driver. If the device does not already have a driver, then a candidate list of drivers is provided. Each driver from the list is sequentially tried until a driver is found that does not cause an error. (*Kathail* abstract.) A device in a device tree is automatically matched up with its appropriate driver according to the device's name (*Kathail*, col.7, lines 57-59). If the new device does not have a name, then a pseudo-name is made up for it (*Kathail*, col. 8, lines 19-22). A driver description for the driver then helps a device manager pick the best driver among multiple candidates (*Kathail*, col. 8, lines 64-66). Thus, replacing a driver is a simple two-step process of 1) the driver to be replaced giving up control of the device and 2) installing the new driver (*Kathail*, col. 17, lines 57-62). If two drivers are available, then the most recent version is chosen (*Kathail*, col. 36, lines 12-13). Thus, the device asks 1) is there a driver available and 2) where is the most current version of the driver (*Kathail*, col. 42, lines 45-47)?

It is axiomatic that anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention (citations omitted). *Kathail* does not disclose each claimed feature.

Specifically, with reference to exemplary Claim 1, *Kathail* does not teach or suggest “determining if said firmware images are compatible.” *Kathail* never addresses the issue or

whether two firmware images are compatible, but rather is focused only on whether a driver (firmware) is compatible with a hardware device.

Furthermore, *Kathail* never teaches or suggests “compatibility tables” that are to be used in the event that two firmware images are from different families. That is, *Kathail* never teaches or suggests “evaluating said compatibility tables to determine if said firmware images are compatible in response to said determination that said firmware family codes of said firmware images are not the same, wherein each of said compatibility tables describes the a relationship between an associated firmware image and other family codes.”

Appellants therefore request that the rejection of Claim 1 be reversed.

CONCLUSION

As the prior art cited does not teach or suggest all of the features of the presently claimed invention, Appellants respectfully request that the rejection of Claims 1 be reversed.

Respectfully submitted,



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CLAIMS APPENDIX

1. A method for identifying compatibility between two firmware images, comprising:
analyzing a control block of each of said firmware images, wherein each of said control blocks includes a firmware family code and a compatibility table of a firmware image associated with said control block;
determining if said firmware family codes of said firmware images are the same; and
evaluating said compatibility tables to determine if said firmware images are compatible in response to said determination that said firmware family codes of said firmware images are not the same, wherein each of said compatibility tables describes the a relationship between an associated firmware image and other family codes.
2. The method as recited in Claim 1, further comprising reporting said firmware images are not compatible if said family codes of said firmware images are not the same and said evaluation of said compatibility tables concludes that said firmware images are not compatible.
3. The method as recited in Claim 1, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware image.
4. The method as recited in Claim 3, wherein said table entry includes a family code and a stepping level of said different firmware image.
5. The method as recited in Claim 4, wherein said table entry further includes a relationship code that identifies whether a firmware image associated with said compatibility table can be utilized to replace a firmware belonging to a firmware family identified in said compatibility table.
6. The method as recited in Claim 5, wherein said relationship code includes a family relationship code and a stepping level relationship code.

7. The method as recited in Claim 6, wherein said family relationship code identifies which firmware family code is compatible with said firmware image associated with said compatibility table.
8. The method as recited in Claim 6, wherein said stepping level relationship code identifies which stepping levels can replace or be replaced with said firmware image associated with said compatibility table.
9. The method as recited in Claim 1, wherein each of said control block further includes a stepping level of an associated firmware image.
10. The method as recited in Claim 1, wherein each of said control blocks is resident in an associated firmware image.
11. The method as recited in Claim 1, wherein each of said control blocks is not resident in an associated firmware image and accessed utilizing a software application interface (API).
12. A computer-readable medium having stored thereon a data structure for a firmware family control block of a firmware image, said data structure comprising:
 - a first field containing data representing a firmware family code of said firmware image;
 - and
 - a second field containing data representing a compatibility table entry, wherein said compatibility table includes a stepping level relationship code that identifies which stepping levels can replace or be replaced by said firmware image.
13. The computer-readable medium as recited in Claim 12, wherein said data structure further includes a third field containing data representing a firmware stepping level of said firmware image.
14. The computer-readable medium as recited in Claim 12, wherein said computer-readable medium is a non-volatile memory device.

15. The computer-readable medium as recited in Claim 14, wherein said non-volatile memory device is a programmable read only memory (PROM).
16. The computer-readable medium as recited in Claim 14, wherein said non-volatile memory device is an electrically erasable programmable read only memory (EEPROM).
17. The computer-readable medium as recited in Claim 12, wherein said compatibility table entry includes a relationship code that describes a relationship between said firmware image and other firmware images which may be compatible with said firmware image.
18. The computer-readable medium as recited in Claim 12, wherein said compatibility table entry includes a family relationship code that identifies a firmware family code of at least one other firmware image which may be compatible with said firmware image.
19. The method as recited in claim 1, wherein said two firmware images include an original firmware image and a replacement firmware image, and wherein said firmware images are directly deemed compatible if said replacement firmware image can replace said original firmware image without causing an error when said replacement firmware is executed.
20. A computer-readable medium having stored thereon computer executable instructions for implementing a method for identifying compatibility between firmware images, said computer executable instructions when executed perform the steps of:
 - analyzing a control block of each of said firmware images, wherein each of said control blocks includes a firmware family code and a compatibility table of a firmware image associated with said control block;
 - determining if said firmware family codes of said firmware images are the same; and
 - evaluating said compatibility tables to determine if said firmware images are compatible in response to said determination that said firmware family codes of said firmware images are not the same, wherein each of said compatibility tables describes a relationship between an associated firmware image and other family codes.

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21. The computer-readable medium as recited in Claim 20, wherein said computer executable instructions further comprising reporting said firmware images are not compatible if said family codes of said firmware images are not the same and said evaluation of said compatibility tables concludes that said firmware images are not compatible.
22. The computer-readable medium as recited in Claim 20, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware image.
23. The computer-readable medium as recited in Claim 22, wherein said table entry includes a family code and a stepping level of said different firmware image.
24. The computer-readable medium as recited in Claim 23, wherein said table entry further includes a relationship code that identifies whether a firmware image associated with said compatibility table can be utilized to replace a firmware belonging to a firmware family identified in said compatibility table.
25. The computer-readable medium as recited in Claim 24, wherein said relationship code includes a family relationship code that identifies which firmware family code is compatible with said firmware image associated with said compatibility table.
26. The computer-readable medium as recited in Claim 24, wherein said relationship code includes a stepping level relationship code that identifies which stepping levels can replace or be replaced with said firmware image associated with said compatibility table.
27. The computer-readable medium as recited in Claim 20, wherein each of said control block further includes a stepping level of an associated firmware image.
28. A data processing system, comprising:
a processor;

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a non-volatile memory, coupled to said processor;
a firmware image resident in said non-volatile memory; and
a firmware family control block, wherein said firmware family control block is associated with said firmware and includes:
a firmware family code of said firmware image; and
at least one compatibility table entry.

29. The data processing system as recited in Claim 28, wherein said firmware family control block further includes a firmware stepping level of said firmware image.

30. The data processing system as recited in Claim 28, wherein said non-volatile memory is a programmable read only memory (PROM).

31. The data processing system as recited in Claim 28, wherein said non-volatile memory device is an electrically erasable programmable read only memory (EEPROM).

32. The data processing system as recited in Claim 28, wherein said compatibility table entry includes a relationship code that describes a relationship between said firmware image and other firmware images which may be compatible with said firmware image.

33. The data processing system as recited in Claim 28, wherein said compatibility table entry includes a family relationship code that identifies a firmware family code of at least one other firmware image which may be compatible with said firmware image.

34. The data processing system as recited in Claim 28, wherein said compatibility table includes a stepping level relationship code that identifies which stepping levels can replace or be replaced by said firmware image.

35. A method for upgrading an installed firmware with a candidate firmware, comprising:

determining if each of said installed and candidate firmwares has a control block, wherein each of said control blocks includes a firmware family code, firmware stepping level and compatibility table of an associated firmware;

acquiring firmware family codes and firmware stepping levels of said installed and candidate firmwares in response to said determination that both of said installed and candidate firmwares have a control block;

comparing said family codes and said stepping levels of said installed and candidate firmwares; and

determining if said installed and candidate firmwares are compatible utilizing said compatibility tables in response to said family codes and said stepping levels of said installed and candidate firmwares not matching.

36. The method as recited in Claim 35, further comprising utilizing legacy methods for determining if said installed and candidate firmwares are compatible in response to said determination that said installed firmware does not have a control block.

37. The method as recited in Claim 35, further comprising overwriting said installed firmware with said candidate firmware in response to said determination that said installed and candidate firmwares are compatible.

38. The method as recited in Claim 35, further comprising reporting said installed firmware with said candidate firmware are incompatible in response to said determination that said installed and candidate firmwares are not compatible.

39. The method as recited in Claim 35, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware.

40. The method as recited in Claim 39, wherein said table entry includes a family code and a stepping level of said different firmware.

41. The method as recited in Claim 40, wherein said table entry further includes a relationship code that identifies whether a firmware associated with said compatibility table can be utilized to replace a firmware belonging to a firmware family identified in said compatibility table.

42. The method as recited in Claim 41, wherein said relationship code includes a family relationship code that identifies which firmware family code is compatible with said firmware associated with said compatibility table.

43. The method as recited in Claim 41, wherein said relationship code includes a stepping level relationship code that identifies which stepping levels can replace or be replaced with said firmware associated with said compatibility table.

44. A computer-readable medium having stored thereon computer executable instructions for implementing a method for upgrading an installed firmware with a candidate firmware, said computer executable instructions when executed perform the steps of:

determining if each of said installed and candidate firmwares has a control block, wherein each of said control blocks includes a firmware family code, firmware stepping level and compatibility table of an associated firmware;

acquiring firmware family codes and firmware stepping levels of said installed and candidate firmwares in response to said determination that both of said installed and candidate firmwares have a control block;

comparing said family codes and said stepping levels of said installed and candidate firmwares; and

determining if said installed and candidate firmwares are compatible utilizing said compatibility tables in response to said family codes and said stepping levels of said installed and candidate firmwares not matching.

45. The computer-readable medium as recited in Claim 44, wherein said computer executable instructions further comprising utilizing legacy methods for determining if said installed and

candidate firmwares are compatible in response to said determination that said installed firmware does not have a control block.

46. The computer-readable medium as recited in Claim 44, wherein said computer executable instructions further comprising overwriting said installed firmware with said candidate firmware in response to said determination that said installed and candidate firmwares are compatible.

47. The computer-readable medium as recited in Claim 44, wherein said computer executable instructions further comprising reporting said installed firmware with said candidate firmware are incompatible in response to said determination that said installed and candidate firmwares are not compatible.

48. The computer-readable medium as recited in Claim 44, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware.

49. The computer-readable medium as recited in Claim 48, wherein said table entry includes a family code and a stepping level of said different firmware.

50. The computer-readable medium as recited in Claim 49, wherein said table entry further includes a relationship code that identifies whether a firmware associated with said compatibility table can be utilized to replace a firmware belonging to a firmware family identified in said compatibility table.

51. The computer-readable medium as recited in Claim 50, wherein said relationship code includes a family relationship code that identifies which firmware family code is compatible with said firmware associated with said compatibility table.

52. The computer-readable medium as recited in Claim 50, wherein said relationship code includes a stepping level relationship code that identifies which stepping levels can replace or be replaced with said firmware associated with said compatibility table.